

1. A magnetic roller comprising a foamed resin magnetic material.
2. The magnetic roller of claim 1, wherein the foamed resin magnetic material comprises from about 80 to about 95 weight percent of magnetic filler and from about 5 to about 20 weight percent of resin binder.
3. The magnetic roller of claim 2, wherein the magnetic filler comprises a ferrite filler.
4. The magnetic roller of claim 2, wherein the magnetic filler comprises barium ferrite, strontium ferrite, a rare earth-cobalt alloy, a rare earth-iron-boron alloy, or mixtures thereof.
5. The magnetic roller of claim 2, wherein the resin binder comprises nylon.
6. The magnetic roller of claim 2, wherein the resin binder comprises nylon-6, nylon-12, nylon-6/6, nylon 6/10, nylon 6/12, polyvinyl chloride or polypropylene.
7. The magnetic roller of claim 4, wherein the ferrite filler comprises strontium ferrite filler.
8. The magnetic roller of claim 2, wherein the foamed resin magnetic material further comprises glass fibers, carbon filler, or mixtures thereof.

9. The magnetic roller of claim 2, wherein the roller contains at least 5 weight percent less of the magnetic filler and resin binder as compared with a same sized roller formed from non-foamed magnetic filler and resin binder and exhibits substantially equivalent magnetic performance as such a same sized roller.
10. The magnetic roller of claim 2, wherein the roller contains at least 5% less of the magnetic filler and resin binder as compared with a same sized roller formed from non-foamed magnetic filler and resin binder and exhibits substantially equivalent mechanical strength as such a same sized roller.
11. A method of producing a magnetic roller comprising the steps of:  
providing magnetic filler, a resin binder and a foaming agent in a closed mold;  
releasing atmospheric gas in the closed mold; and removing the resulting formed roller from the mold.
12. The method of claim 12, wherein the foaming agent is provided in an amount of from about 0.1 to about 2.0 weight percent, based on the weight of the resin binder.
13. The method of claim 12, wherein the foaming agent comprises a nitrogen gas, carbon dioxide gas or a mixture thereof producing chemical blowing agent.
14. The method of claim 12, wherein the foaming agent comprises a carbon dioxide gas-producing chemical blowing agent.

15. Method of claim 12, wherein the foaming agent comprises a gas and the gas is injected into the mold.

2025-07-20 10:54:33